Noise Element

Contents

I. INTRODUCTION

A. BACKGROUND AND INTENT

The goal of the Noise Element is to achieve and maintain an environment which is free from objectionable, excessive or harmful noise.

The Noise Element

- Identifies and defines existing and future environmental noise levels from sources of noise within or adjacent to the City of Carlsbad by means of Noise Contour maps.
- Establishes goals, objectives and policies to mitigate these noise impacts.
- Provides policies and action programs to implement the Goals and Objectives.

"The Goal of the Noise Element is to achieve and maintain an environment which is free from objectionable, excessive or harmful noise."

B. STATE LAW

Section 65302(f) of California's Planning and Zoning Laws requires a Noise Element which identifies and appraises noise problems in the community. The Noise Element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

1. Highways and freeways;
2. Primary arterial and major local streets;
3. Passenger and freight online railroad operations and ground rapid transit systems;
4. Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation;
5. Local industrial plants, including, but not limited to, railroad classification yards; and
6. Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive. The noise contours shall be used as a guide for establishing a pattern of land uses in the Land Use Element that minimizes the exposure of community residents to excessive noise.

The Noise Element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted Noise Element shall serve as a guideline for compliance with the state's Noise Insulation Standards.

C. RELATIONSHIP TO OTHER ELEMENTS

The Noise Element is correlated with the Land Use, Circulation, and Housing Elements of the General Plan. The Land Use Element is related to the Noise Element in that noise can have a significant impact on land use. The Circulation Element is related to the Noise Element in that the majority of the noise created in Carlsbad is created by trains, planes or automobiles. The Housing Element relates to the Noise Element by promoting desirable residential environments which buffer existing and future residents from undesirable noise impacts. Consistent with state law, it is the policy of the City that the Noise Element be consistent with all General Plan Elements.

II. SOURCES OF NOISE

A. CIRCULATION

1. ROADS

Roadway traffic noise is the most extensive noise problem faced by Carlsbad. Barring any dramatic changes in truck or automobile usage patterns, it is likely that the amount of traffic in Carlsbad will grow with the City's population. New development is occurring adjacent to major roadways throughout the City. Unless

precautionary measures are taken, serious noise problems could result.

"Roadway traffic noise is the most extensive noise problem faced by Carlsbad."

Vehicular noise has three main component sources: engine/transmission noise, exhaust noise and tire noise. The intensity of noise emissions from any given vehicle will vary with its size and other factors, such as speed, acceleration, braking, roadway grade and conditions of the roadway surface. Thus a busy downtown arterial with stop and go traffic is often noisier than an open highway with comparable traffic volumes.

Noise contours have been prepared for all Circulation Element roadways in Carlsbad as shown on the current and future noise exposure maps (See Map 1: Existing Noise Exposure Contour Map and Map 2: Future Noise Exposure Contour Map).

Interstate 5 has the greatest existing and projected roadway noise emissions. In addition, I-5 impacts the greatest number of existing dwellings. There are a considerable number of existing single family and multi-family dwellings which are impacted by freeway noise levels in excess of 65 dBA CNEL. For these existing dwellings, noise attenuation is difficult. Construction of solid barriers along the freeway is possible, but cost may be prohibitive. The City can, however, educate property owners as to the methods of insulating existing residential units from freeway noise through the use of barriers and insulation materials. The City's "Development Review: Noise Guidelines Manual" is a useful reference.

While other routes within the City have a lesser impact than does I-5, many roads will still have significant noise impact potential and new projects should therefore be subject to noise impact evaluation.

It is important that new development fronting on major roadways be compatible with the recommendations of this element. The action plan section of this element contains the measures intended to avert future problems caused by traffic noise.

2. AIRPORT

McClellan-Palomar Airport is presently operating as a general aviation facility and is located west of El Camino Real, just north of Palomar Airport Road in the City of Carlsbad. The airport's current annual operation of approximately 235,000 aircraft is expected to increase at the airport's ultimate buildout condition to approximately 334,000. In general, land in the immediate vicinity of the airport or under the take off or landing approach is subject to noise levels which are unsuitable for residential development, schools, hospitals and other similar noise sensitive uses. Projected noise contours around the airport are provided in the Comprehensive Land Use Plan (CLUP) for McClellan-Palomar Airport and have been included in this Element (See Map 3: Airport Noise Contour Map). In 1989 the FAA began a detailed noise study for McClellan-Palomar Airport. The findings of this study have been published in the proposed 1992 Part 150 Study for the airport, which is currently under review as part of its adoption process. However, all new development in the vicinity of the airport should continue to be reviewed to ensure compliance with the noise standards contained in this element and the approved Comprehensive Land Use Plan (CLUP) for McClellan-Palomar Airport.

The Comprehensive Land Use Plan (CLUP) for McClellan-Palomar Airport is to be a long-range master plan for the airport. As stated in State Public Utility Code Section 21675, "The commission plan shall include and shall be based on a long-range master plan or an airport layout plan, as determined by the Division of Aeronautics of the Department of Transportation, that reflects the anticipated growth of the airport during at least the next 20 years." For purposes of General Plan Land Use planning, and lacking further information, the City of Carlsbad must assume that the Comprehensive Land Use Plan (CLUP) for McClellan-Palomar Airport is a longrange master plan updated every five years, that reflects anticipated growth for the airport for at least the next twenty (20) years.

3. RAIL

The Atchison, Topeka and Santa Fe (AT&SF) Railroad runs parallel to the coastline through its 6 1/2 mile length in Carlsbad. The railroad right-

of-way is 100 feet wide throughout most of the area south of Tamarack Avenue and expands to 200 feet in width as it travels north of Tamarack through the downtown beach area and central business district.

Currently AMTRACK operates several daily passenger trains between San Diego and Los Angeles. Additionally, a number of freight trains pass through Carlsbad daily, some after 5 P.M. These evening and nighttime freight trains are of particular concern because they run during the hours when people are more sensitive to noise. By the end of 1993, it is projected that a commuter rail will run at least four daily trips from Oceanside to San Diego with two stops in Carlsbad. Ultimately, up to 20 commuter trains may travel through the City at high speed.

There are several sources of railroad noise. The majority of the noise emanates from the locomotive (and its component systems, such as exhaust devices and cooling fans) and from the interaction between the rail and train wheels. The rhythmic clacking noise emitted by trains result from friction of the wheel at rail joints. Roughness on either the rail or wheel can also contribute to increased noise emissions.

Safety devices such as warning whistles and wig-wags with bells used at grade crossings can contribute significantly to railroad noise. The State of California Public Utilities Commission requires these warning signals as trains approach grade crossings to warn motorists and pedestrians.

"A combined program of noise mitigating design and building sound insulation will help control future noise problems near the railroad."

For existing residential units, noise reduction is a problem. It is often difficult and expensive to install sound insulation materials on existing structures. Also, the State Uniform Building Code standards for sound insulation apply only to new structures. Construction of noise barriers along the railroad right-of-way could attenuate noise levels significantly. However, the railroad right-of-way is owned by the AT&SF Railroad, whose consent would be necessary before any barrier could be constructed. Also cost and aesthetic impact may be prohibitive factors in the construction of noise barriers.

The Land Use Element of the General Plan designates a substantial amount of land bordering along the railroad right-of-way for residential use. New residential development and nonresidential development will occur adjacent to the railroad.

The City does have the ability to regulate site design and requires sound insulation for new development in the vicinity of the railroad. A combined program of noise mitigating design and building sound insulation will help control future noise problems near the railroad.

New projects should maximize the physical separation of structures from the railroad tracks. Additionally, project design should stress the orientation of units away from the railroad, limiting or acoustically designing window openings onto the right-of-way, and construction of noise barriers such as solid walls, earthen berms, or berm/wall combinations.

B. LAND USE

To a great extent, the future ambient noise levels of the City will be determined by the type, intensity and location of future land uses. Future noise levels will also be affected by the construction of new roadways to serve new development and by land uses that generate noise. Noise levels may affect the desirability or livability of a community. Noise may also negatively impact the economic viability of a community by reducing the desirability of an area as a place to live, work, play, or shop. For these reasons, noise continues to be an important consideration of the City in future land use planning.

"To a great extent, the future ambient noise levels of the City will be determined by the type, intensity and location of future land uses."

Some land uses are more compatible with higher noise levels than are others. For example, schools, hospitals, churches and residences are generally considered more sensitive to noise intrusion than are commercial or industrial activities. To respond to the sensitivity of certain land uses to higher noise levels, this element includes policies to reduce noise impacts on noise-sensitive uses such as residences.

It may be appropriate to develop noise-sensitive uses such as residences, hospitals, or churches in noisy areas. In these instances, it is important that the proper measures are used to reduce noise impacts. In all cases sensitive site plan design is to be used as the first method to reduce noise impacts on a project. Sensitive site plan design measures will include, for example, increasing the distance between the noise source and the receiver; placing non-noise sensitive uses such as parking areas, maintenance facilities, and utility areas between the source and the receiver; using non-noise sensitive structures, such as a garage, to shield noise sensitive areas; and, orienting buildings to shield outdoor spaces from a noise source. These and other noise mitigation techniques are discussed in more detail in the City's Noise Guidelines Manual available in the Planning Department.

C. OTHER MOBILE SOURCES

1. OFF ROAD MOTORCYCLE NOISE

Motorcycle noise has been a problem in Carlsbad. In particular, complaints have been registered against recreational use of dirt bikes or two-cycle engine motorcycles. The Police Department continues to enforce the prohibition of motorized off-road vehicles within the City, except as permitted at the Carlsbad Raceway.

Local jurisdictions have the authority to control loud or faulty mufflers, horn blowing, off-road vehicles and vehicle speed. Although noise limits may be set for off-road vehicles, they are rarely necessary since statutes against trespassing nearly always apply.

Most trail bikes are not outfitted with the necessary lights, fenders, mufflers, spark arresters or baffles required by law. Consequently they are not licensed and cannot be legally operated on public streets. Continued police enforcement against these unlicensed vehicles would likely reduce motorcycle noise on public streets.

2. MOTOR BOAT

This noise problem does not affect very many of Carlsbad's residents. However, in response to noise complaints, the City has adopted a maximum speed limit for boats on the Agua Hedionda Lagoon and has purchased a boat for enforcement. The reduction in speed does reduce noise somewhat. If further control appears warranted, the City should consider setting curfews on the use of the lagoon or limit the types of boats which could use the lagoon.

3. MODIFIED VEHICLE EXHAUST SYSTEM

Vehicles operating on city streets which have faulty or modified exhaust systems can cause significant local noise impacts, especially when operated in a "hot rod" manner. Continued enforcement of the vehicle code is encouraged in order to control this contributor to noise pollution.

III. NOISE CONTOUR MAPS

The noise contour maps contained herein, show 1990 and 2010 noise contours for the following transportation systems (See Maps 1: Existing Noise Exposure Contour Map (1990) and Map 2: Future Noise Exposure Map (2010):

(1) Interstate 5
(2) State Highway 78
(3) Circulation Element Roadways of the Carlsbad General Plan
(4) Rail
(5) McClellan-Palomar Airport

Substantial changes in traffic patterns or the availability of new noise contour data may indicate the need for revisions of this element. Consequently, the noise contours contained in this element should be reviewed and revised periodically.

Noise levels for McClellan-Palomar Airport are expressed in terms of Community Noise Equivalent Level (CNEL), measured at 5 dB increments and are mapped for the range of 55 to 75 dBA CNEL. Noise levels for freeways, prime arterials and the railroad are expressed as CNEL down to the 60 dBA. All other transportation modes shown on the contour map are expressed as CNEL down to the 55 dBA. Community Noise Equivalent Level (CNEL) is based upon A-weighted noise level, number or duration of noise events, and time of occurrence throughout the 24 hour day. The CNEL measurement weights noise occurrences in the evening and nighttime greater than those in the daytime. Please refer to the Carlsbad "Noise Guidelines Manual" for more information regarding CNEL and general noise science.

The airport's projected noise contours identified in the adopted Comprehensive Land Use Plan for McClellan-Palomar Airport are included in this element (See Map 3: Airport Noise Contour Map).

IV. GOALS, OBJECTIVES AND IMPLEMENTING POLICIES & ACTION PROGRAMS

GENERAL

A. GOAL

A City which is free from excessive, objectionable, or harmful noise.

B. OBJECTIVES

B.1 To create an ongoing noise identification and control program.

B.2 To control harmful or undesirable noise.

B.3 To protect the hearing and well being of Carlsbad residents and visitors.

C. IMPLEMENTING POLICIES AND ACTION PROGRAMS

C.1 Control harmful or undesirable sounds through the planning and regulatory process with emphasis on noise/land-use compatibility planning.

C.2 Review all development proposals, both public and private, for consistency with the policies of this element.

C.3 Review existing City ordinances which relate to noise control for compatibility with the goals and policies of this Element.

C.4 Continue to enforce building codes to ensure adequate sound insulation between dwellings and to ensure adequate sound insulation of interior areas from loud external noise sources. The City shall continue to enforce project conditions of approval related to noise control.

C.5 Attempt to control noise primarily at its source. Where this is not feasible, controls along the transmission path of the noise should be required.

C.6 Control noise generated through its own functions and activities and minimize noise impacts resulting from City-sponsored or approved activities.

C.7 Review City operations to make sure that noise generated by construction, maintenance activities, and street sweeping minimize significant adverse noise levels.

C.8 Periodically review the noise contours contained in this element. Substantial changes in traffic patterns or the availability of new noise contour data may indicate the need for revisions.

C.9 Participate in noise control and hearing conservation programs in all appropriate work environments owned, operated, or otherwise under the control of the City.

LAND USE

A. GOALS

A.1 A City where land uses are not significantly impacted by noise.

A.2 A City with industrial and commercial land uses which do not produce significantly adverse noise impacts.

A.3 A City which controls mobile sources of noise to help assure that mobile noise sources do not substantially contribute to the noise environment.

B. OBJECTIVES

B.1 To achieve noise compatibility between industrial/commercial and surrounding land uses and achieve an acceptable noise environment in industrial/commercial areas.

B.2 To achieve noise impact compatibility between land uses through the land use planning/development review process.

B.3 To actively control mobile noise violations.

C. IMPLEMENTING POLICIES AND ACTION PROGRAMS

C.1 Encourage the development of compatible land uses in areas which are subject to excessive noise levels.

C.2 Develop specific noise standards for use in reviewing noise sensitive development.

C.3 Require the use of project design techniques, such as, increasing the distance between the noise source and the receiver; placing non-noise sensitive uses such as parking areas, maintenance facilities, and utility areas between the source and the receiver; using non-sensitive structures, such as a garage, to shield noise sensitive areas; and, orienting buildings to shield outdoor spaces from a noise source to minimize noise impacts during any discretionary review of a residential or other noise sensitive project.

C.4 Continue to enforce the State Motor Vehicle Code as it applies to excessive noise. The Carlsbad Police Department should continue to reduce the number of excessively noisy vehicles on city streets. The Department should also continue to deter persons from operating their motor vehicles in a noisy manner.

C.5 Enforce the policy of the City that sixty (60) dBA CNEL is the exterior noise level to which all residential units should be mitigated. 65 dBA CNEL is the maximum noise level to which residential units subject to noise from McClellan-Palomar Airport should be permitted. Additional disclosure actions (easements, deed restrictions, recorded notice, etc.) may be required of developers/sellers of noise impacted residential units.

For residential properties identified as requiring a noise study, a study shall be prepared by an acoustical professional. This study shall document the projected maximum exterior noise level and mitigate the projected exterior noise level to a maximum allowable noise level as identified in this policy.

Interior noise levels should be mitigated to 45 dBA CNEL when openings to the exterior of the residence are open or closed. If openings are required to be closed to meet the interior noise standard, then mechanical ventilation shall be provided.

If the acoustical study shows that exterior noise levels cannot be mitigated to the level allowable as identified in this policy or less, the development should not be approved without one or more of the following findings:

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect (noise).
(2) Changes or alterations to avoid or substantially lessen the significant environmental effect (noise) are within the responsibility and jurisdiction of another public agency and not the City of Carlsbad. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
(3) Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives to avoid or substantially lessen the significant environmental effect (noise).

If a project is approved with exterior noise levels exceeding the level allowable pursuant to this policy, all purchasers of the impacted property shall be notified in writing prior to purchase, and by deed disclosure in writing, that the property they are purchasing is, or will be, noise impacted and does not meet Carlsbad noise standards for residential property. Notwithstanding project approval, no residential interior CNEL should exceed 45 dBA.

C.6 Require that a "Noise" Study be submitted with all discretionary applications for residential projects of five or more single family dwelling units or any multiple family dwelling units located within or 500-feet beyond the 60 dBA CNEL noise contour lines as shown on Map 2: Future Noise Exposure Contour Map.

C.7 Enforce the policy of the City that site design techniques such as increasing the distance between the noise source and the receiver; placing non-noise sensitive uses such as parking areas, maintenance facilities and utility areas between the source and the receiver; using non-noise sensitive structures, such as a garage, to shield noise-sensitive areas; and orienting buildings to shield outdoor spaces from a noise source, be the first tool used to mitigate noise impacts on noise sensitive land uses rather than the construction of walls or berms.

C.8 Recognize that mitigation of existing or future noise impacts from Circulation Element roadways, AT&SF railroad or McClellan-Palomar Airport for existing or future development within the City, shall not be funded by the City. However, the City shall assist applicants with the processing of necessary permits for mitigating noise on private property, which permits may include right-of-way permits, encroachment permits, retaining wall permits and zoning variances. The City shall also assist property owners in the establishment of assessment districts, to fund noise mitigation improvements, in accordance with established City policies and procedures.

C.9 Discourage the exclusive use of noise walls in excess of 6 feet in height as mitigation for noise along Circulation Element roadways.

C.10 Utilize natural barriers such as site topography or constructed earthen berms to mitigate noise on a project. When noise walls are determined to be the only feasible solution to noise mitigation, then the walls shall be designed to limit aesthetic impacts. When over-height walls are necessary to mitigate noise, a berm/wall combination with heavy landscaping, a terraced wall heavily landscaped, or other similar innovative wall design technique shall be used to minimize visual impacts.

CIRCULATION

ROADS

A. GOAL

To provide a roadway system that does not subject surrounding land uses to significantly adverse noise levels.

B. OBJECTIVE

To design and manage all roadways to maintain acceptable noise levels.

C. IMPLEMENTING POLICIES AND ACTION PROGRAMS

C.1 Take measures to reduce traffic noise on streets throughout Carlsbad. This will include continued enforcement of applicable sections of the California Vehicle Code regarding equipment and/or operation of motor vehicles.

C.2 Consider noise impacts in the design of road systems and give special consideration to those road corridors in scenic or noise sensitive areas.

C.3 Review traffic flow systems and synchronize signalization, wherever possible to avoid traffic stops and starts, which produce excessive noise, and to adjust traffic flow to achieve noise levels acceptable to surrounding areas.

C.4 Apply the residential noise policies of this element in the review of proposals for the construction or improvement of any roadway, railroad, transit system or other noise producing facility.

AIRPORT

A. GOAL

A City that achieves long-term compatibility between the airport and surrounding land use.

B. OBJECTIVES

B.1 To minimize noise impacts on City residents, the City has planned for non-residential land uses within the 65 dBA CNEL Noise Contour of McClellan-Palomar Airport, as shown on Map 3: Airport Noise Contour Map.

B.2 To develop and enforce programs dealing with airport noise disclosure, avigation

easements and noise control that provide for noise compatibility with surrounding land uses.

C. IMPLEMENTING POLICIES AND ACTION PROGRAMS

C.1 Encourage the development of compatible land uses and restrict incompatible land uses surrounding airport facilities.

C.2 Utilize the noise standards contained in the Comprehensive Land Use Plan (CLUP) for McClellan-Palomar Airport (on file in the Planning Department). However, the City reserves the right to deviate from the CLUP as provided for in State Public Utilities Code Section 21676.

C.3 Recognize that procedures for the abatement of aircraft noise have been identified in the Comprehensive Land Use Plan (CLUP) for McClellan-Palomar Airport. The City expects the widespread dissemination of, and pilot adherence to, the adopted procedures.

C.4 Expect the airport to control noise while the City shall control land-use thus sharing responsibility for achieving and maintaining long-term noise/land-use compatibility in the vicinity of McClellan-Palomar Airport.

C.5 Discourage the development of residential projects with exterior noise levels in excess of 65 dBA CNEL as caused by airport/aircraft operations. The City recognizes that noise levels of 65 dBA CNEL, as caused by aircraft operations, are generally incompatible with developments of residential uses and such developments should not be permitted within the 65 dBA CNEL Airport Noise Contour (See Map 3: Airport Noise Contour Map). However, if residential projects are approved, the City will require Avigation Easements to be placed over lots within new residential development projects located within the 65 dBA CNEL noise contour as mapped on Map 3: Airport Noise Contour Map.

RAIL

A. GOAL

Noise from railroad travel through Carlsbad is not disruptive to adjacent land uses and activities.

B. OBJECTIVE

To develop, maintain and manage a mitigation program for railroad noise.

C. IMPLEMENTING POLICIES AND ACTION PROGRAMS

C.1 Apply the residential noise policies of this Element in the review and approval of the construction or improvement of railroad facilities.

C.2 Apply the noise mitigation guidelines of the Noise Guidelines Manual (on file in the Planning Department) to all proposed development within the 60 dBA CNEL Noise Contour line as depicted on Map 2: Future Noise Exposure Contour Map.

EMPLOYMENT

A. GOAL

A City with healthy and productive work environments that do not cause hearing damage or other adverse noise related health impacts to workers in the City of Carlsbad.

B. OBJECTIVES

B.1 To promote an ongoing noise control and hearing conservation program for the work environment.

B.2 To promote hearing conservation in the workplace.

B.3 To encourage that all business entities operating in the City comply with all occupational Health and Safety laws, rules and/or regulations established by authorized city, county, state or federal agencies.

C. IMPLEMENTING POLICIES AND ACTION PROGRAMS

C.1 Participate in noise control and hearing conservation programs in all appropriate work environments owned, operated, or otherwise under the control of the City.

C.2 Promote that all persons responsible for operation of noise-producing equipment or processes, exercise reasonable care to minimize casual noise exposure to unprotected workers or passers-by to reduce risk of hearing damage.

C.3 Encourage and assist its employees in identifying and abating potential noise hazards on City-owned or controlled property.

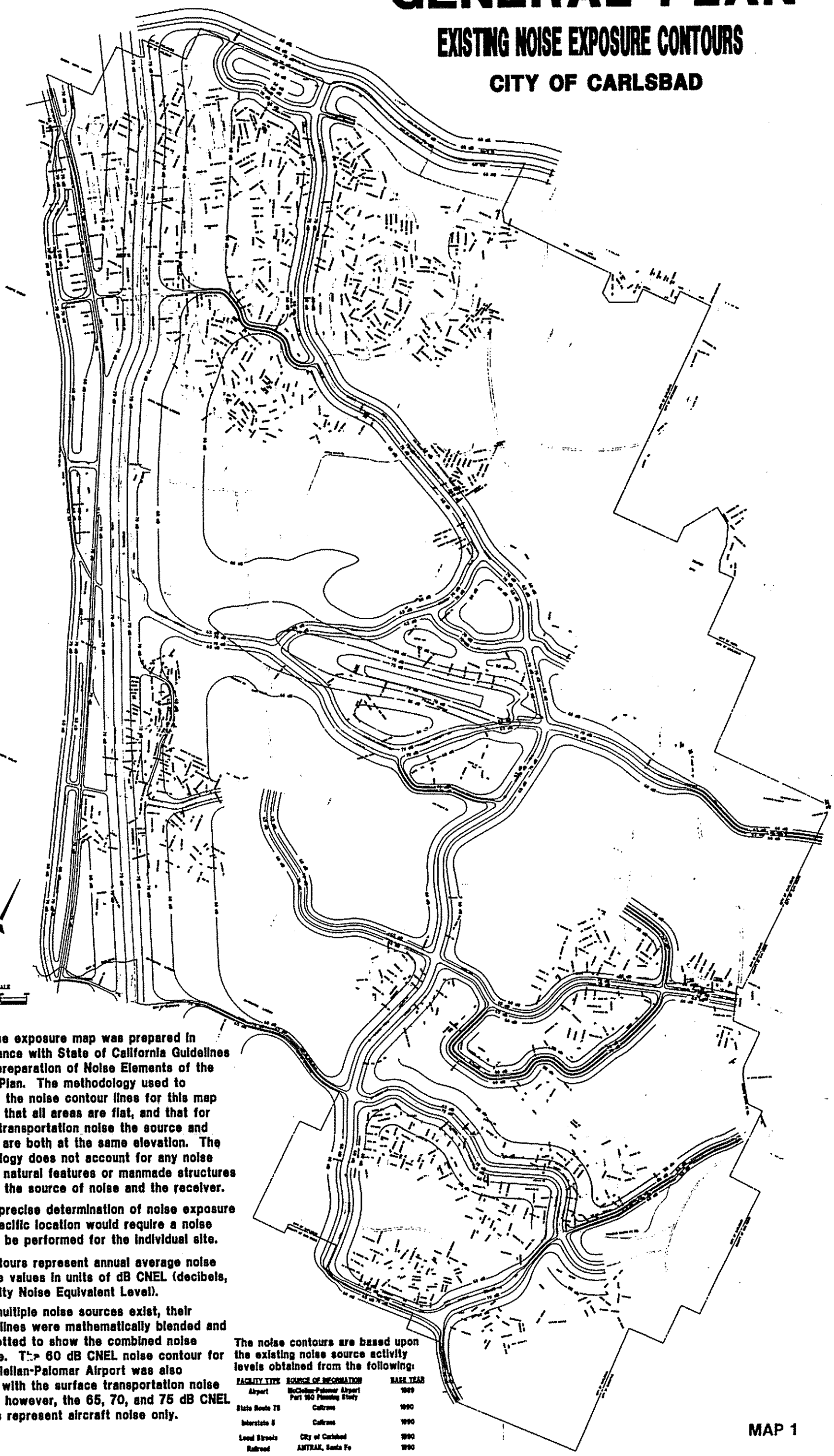
IV. GLOSSARY

AMBIENT NOISE	The composite of all sounds near and far for any environment. Ambient noise levels are generally averaged for given periods of time.
AVIGATION EASEMENT	An air rights easement which protects air lanes around the airport.
CNEL	See Community Noise Equivalent Level.
COMMUNITY NOISE EQUIVALENT LEVEL	A technique used in the State of California for quantifying aircraft and community noise levels. CNEL is based on A-weighted noise measurements, in which both the magnitude of noise and frequency of occurrence are measured. It incorporates factors of amplitude and the pitch of noise, hearing sensitivity of the human ear, duration of noise, and time of day penalty factors. The CNEL measure weights nighttime and evening noise occurrences greater than daytime ones.
DECIBEL (dB)	A unit for measuring the relative loudness of sounds equal approximately to the smallest degree of difference of loudness ordinarily detectable by the human ear.
A-WEIGHTED DECIBEL (dBA)	An A-weighted decibel compensates for the hearing sensitivity of humans by discriminating against the lower frequencies according to an approximate relationship to the sensitivity of the human ear.
EASEMENT	A grant of one or more of the property rights by the property owner to and/or for the use by the public, corporation, city, county or another person or entity.
FREQUENCY	The number of sound waves occurring within a given length of time. Frequency is expressed in Hertz. The human ear perceives differences in frequency as changes in pitch; the higher the frequency, the higher the pitch.
NOISE	A loud, discordant or disagreeable sound.
NOISE SENSITIVE LAND USES	Those land uses which are particularly affected by excessive noise, including residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospital, parks, recreation areas, etc.

GENERAL PLAN

EXISTING NOISE EXPOSURE CONTOURS

CITY OF CARLSBAD



This noise exposure map was prepared in conformance with State of California Guidelines for the preparation of Noise Elements of the General Plan. The methodology used to generate the noise contour lines for this map assumes that all areas are flat, and that for surface transportation noise the source and receiver are both at the same elevation. The methodology does not account for any noise reducing natural features or manmade structures between the source of noise and the receiver.

A more precise determination of noise exposure for a specific location would require a noise study to be performed for the individual site.

The contours represent annual average noise exposure values in units of dB CNEL (decibels, Community Noise Equivalent Level).

Where multiple noise sources exist, their contour lines were mathematically blended and were plotted to show the combined noise exposure. The 60 dB CNEL noise contour for the McClellan-Palomar Airport was also blended with the surface transportation noise sources; however, the 65, 70, and 75 dB CNEL contours represent aircraft noise only.

The noise contours are based upon the existing noise source activity levels obtained from the following:

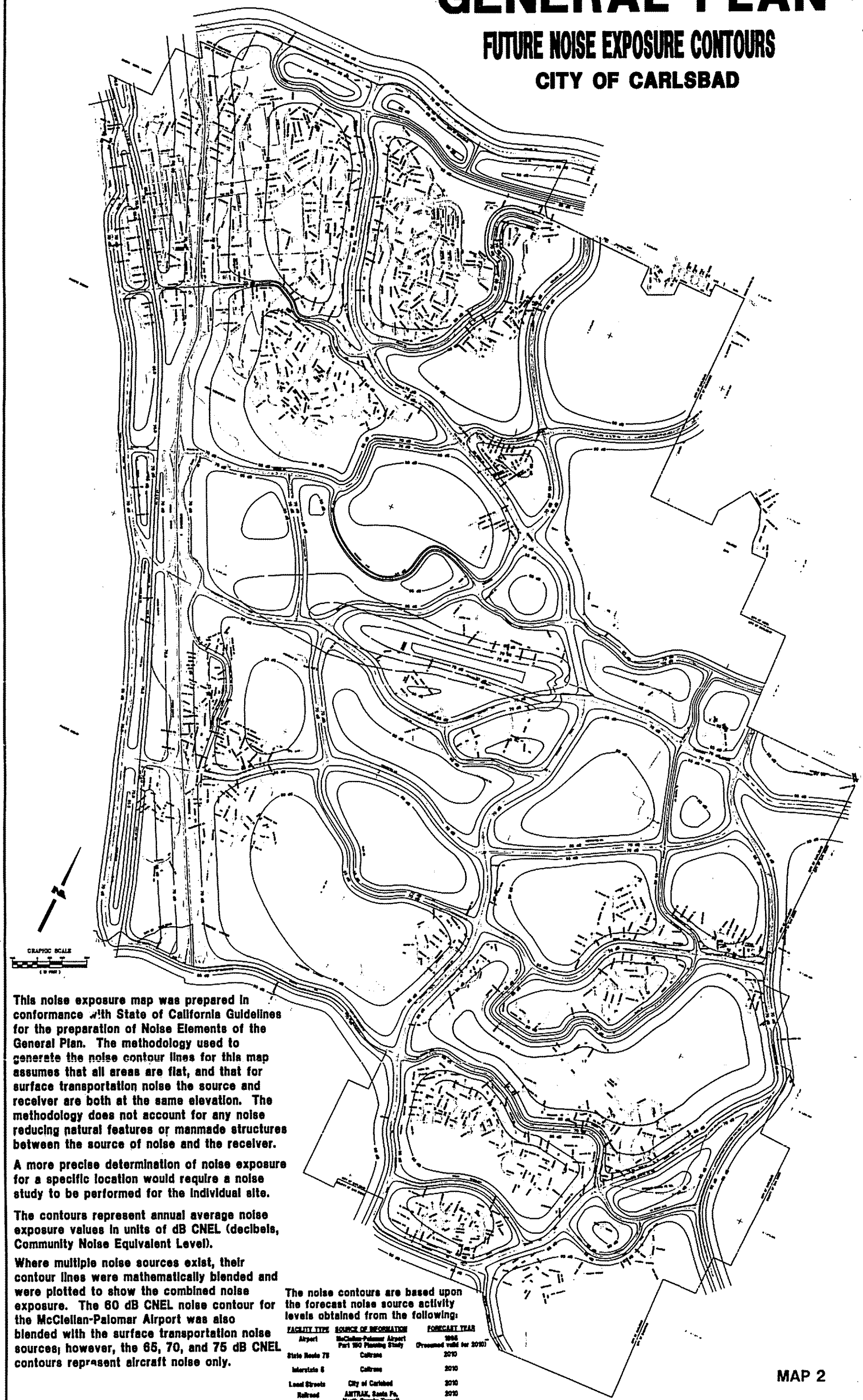
FACILITY TYPE	SOURCE OF INFORMATION	BASE YEAR
Airport	McClellan-Palomar Airport Part 150 Planning Study	1989
State Route 78	Caltrans	1990
Interstate 5	Caltrans	1990
Local Streets	City of Carlsbad	1990
Railroad	AMTRAK, Santa Fe	1990

MAP 1

GENERAL PLAN

FUTURE NOISE EXPOSURE CONTOURS

CITY OF CARLSBAD



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A more precise determination of noise exposure for a specific location would require a noise study to be performed for the individual site.

The contours represent annual average noise exposure values in units of dB CNEL (decibels, Community Noise Equivalent Level).

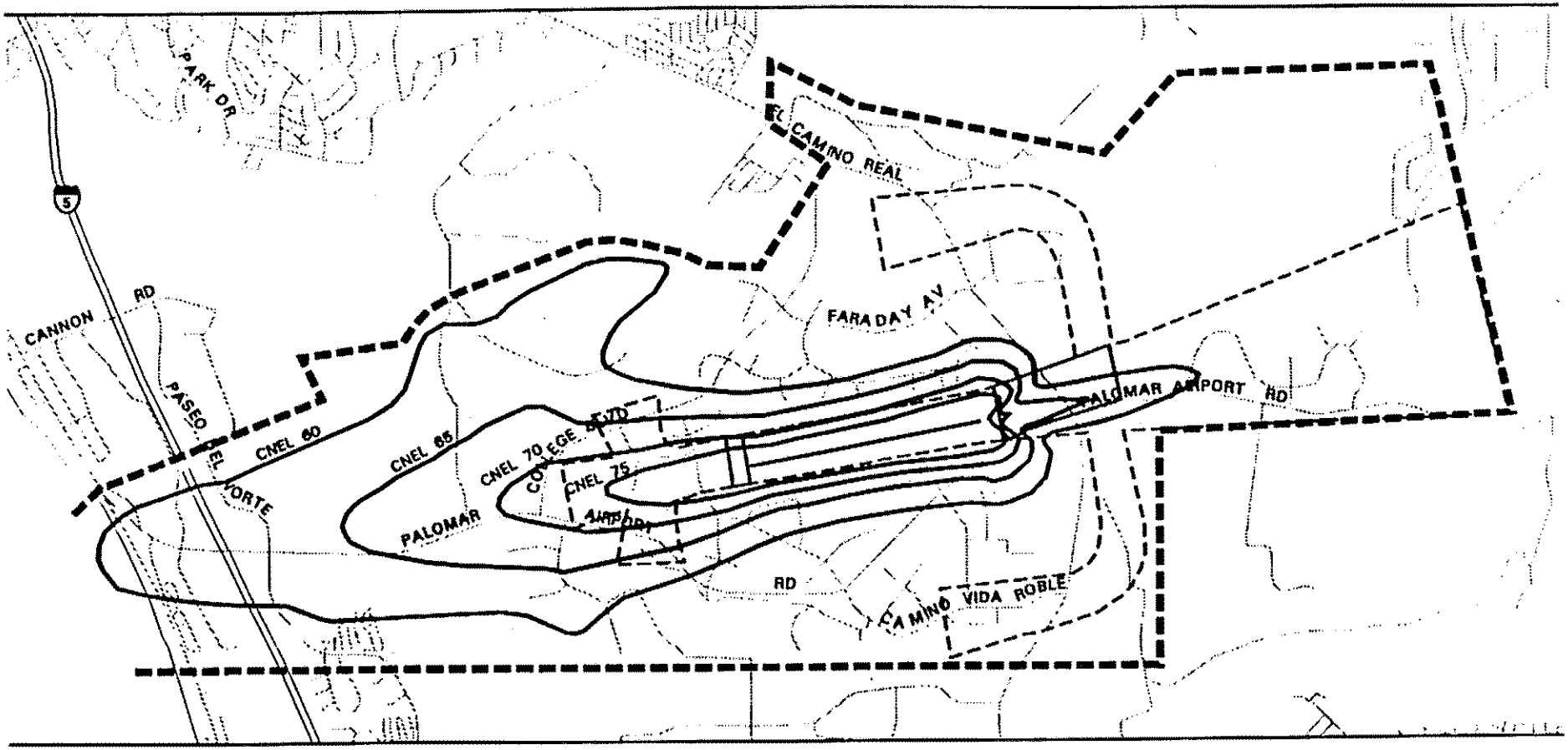
Where multiple noise sources exist, their contour lines were mathematically blended and were plotted to show the combined noise exposure. The 60 dB CNEL noise contour for the McClellan-Palomar Airport was also blended with the surface transportation noise sources; however, the 65, 70, and 75 dB CNEL contours represent aircraft noise only.

The noise contours are based upon the forecast noise source activity levels obtained from the following:

FACILITY TYPE	SOURCE OF INFORMATION	FORECAST YEAR
Airport	McClellan-Palomar Airport Part 150 Planning Study	1995 (Presumed valid for 2010)
State Route 78	Caltrans	2010
Interstate 5	Caltrans	2010
Local Streets	City of Carlsbad	2010
Railroad	AMTRAK, Santa Fe, North County Transit Development	2010

MAP 2

AIRPORT NOISE CONTOUR MAP



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San Diego ASSOCIATION OF GOVERNMENTS

February 17, 1994

Runway Protection Zone

Flight Activity Zone

Airport Influence Area

MAP 3